

Customer No.: 31561
Docket No.: 7558-US-PA
Application No.: 10/064,916

Amendments To Claims

1. (currently amended) A multi-memory architecture with an externally accessible storage capacity known as a total memory capacity and ~~the~~ a number of pins of the multi-memory architecture having the total memory capacity is known as a total pin number, wherein the total pin number comprises used and unused pins, the multi-memory architecture comprising: a first type non-volatile memory device having a first data storage capacity and a first predefined pin configuration having a first number of pins which is ~~the~~ an actual number of used pins according to the first data storage capacity; and

a second type non-volatile memory device having a second data storage capacity and a second predefined pin configuration having a second number of pins which is ~~the~~ an actual number of pins according to the second data storage capacity, wherein the first number of pins is greater than the second number of pins, and the total ~~number of pins~~ pin number of the multi-memory architecture is ~~not less than~~ equal to the number of pins of the first type non-volatile memory device of ~~the~~ the multi-memory architecture having the total memory capacity.

2. (currently amended) The multi-memory architecture of claim 1, wherein the ~~externally accessible total data storage capacity of the multi-memory architecture is total memory capacity~~ is equal to the first data storage capacity of the first memory device plus the second data storage capacity of the second memory device.

3. (currently amended) The multi-memory architecture of claim 1, wherein the second type non-volatile memory device comprises a plurality of segments and each segment has a data storage capacity equal to the first data storage capacity ~~of the first memory device.~~

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wherein the storage space of the first type non-volatile memory device is used to replace one of the segments in the second type non-volatile memory device so that an access to the replaced segment is mapped to the storage space of the first type non-volatile memory device.

4.(currently amended) The multi-memory architecture of claim 3, wherein the segment in the type non-volatile second memory device that is currently being replaced by the first type non-volatile memory device is used to replace any one of the segments in the second type non-volatile memory device other than the one currently being replaced by the first type non-volatile memory device.

5. (currently amended) The multi-memory architecture of claim 3, further comprising: at least one replacement segment in the second type non-volatile memory device, whose data storage capacity equals to the data storage capacity of each segment in the second type non-volatile memory device, is used to replace any one of the segments in the second type non-volatile memory device other than the one being currently replaced by the first type non-volatile memory device.

6. (currently amended) The multi-memory architecture of claim 1, further comprising a replacement memory area, whose data storage capacity equals to ~~the second memory device~~ the second data storage capacity, which is partitioned into a plurality of segments each being equal in data storage capacity to the first type non-volatile memory device; the replacement memory area is used to replace the second type non-volatile memory device ~~to allow the externally-accessible total storage space of the multi-memory architecture to cover the currently-accessed memory device selected from the second memory device, the replacement~~

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~~memory area excluding the storage space of the segment currently being replaced by the first memory device, and the first memory device in some segments of the currently accessed memory so that when accessing data stored in the multi-memory architecture, the accessed data comprises data stored in segments in one of the second type non-volatile memory device and the replacement memory area other than segments replaced by the first type non-volatile memory device, and data stored in the first type non-volatile memory device.~~

7. (currently amended) The multi-memory architecture of claim 6, wherein the ~~segment currently being replaced by the first segment is replaced by any one of the segments in the currently accessed memory device other than the one being currently replaced by the first memory device~~ in the replacement memory area that is currently being replaced by the first type non-volatile memory device, is used to replace any one of the segments in the replacement memory area other than the one currently being replaced by the first type non-volatile memory device.

8. (currently amended) The multi-memory architecture of claim 6, wherein the second type non-volatile memory device further comprising a plurality of second memory replacement segments, each being equal in data storage capacity to each segment in the currently-accessed memory device, ~~which is~~ and the one second memory replacement segment is used to replace any one of the segments in the currently-accessed memory device other than the segment currently being replaced by the first type non-volatile memory device.

9. (cancelled) The multi-memory architecture of claim 1, wherein the pin configuration of the first memory device having a total data capacity which is the sum of the first

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and second data capacities.

10. (currently amended) A multi-memory architecture comprising:
a first type non-volatile memory device having a first data storage capacity; and
a second type non-volatile memory device having a second data storage capacity;
wherein ~~an overall pin configuration of the multi-memory architecture is compatible with~~
has the same overall pin configuration as ~~the pin configuration of the first memory device having~~
~~the second data storage capacity.~~

11. (currently amended) The multi-memory architecture of claim 10, wherein ~~the an~~
externally-accessible total data storage capacity of the multi-memory architecture is equal to the
first data storage capacity ~~of the first memory device~~ plus the second data storage capacity ~~of the~~
~~second memory device.~~

12. (currently amended) The multi-memory architecture of claim 10, wherein the
second type non-volatile memory device includes a plurality of segments and each segment
comprises a data storage capacity equal to the first data storage capacity ~~of the first memory~~
~~device~~; wherein the storage space of the first type non-volatile memory device is used to replace
one of the segments in the second type non-volatile memory device so that an access to the
replaced segment is mapped to the storage space of the first type non-volatile memory device.

13. (currently amended) The multi-memory architecture of claim 12, wherein the segment
in the second type non-volatile memory device that is currently being replaced by the first type
non-volatile memory device is used to replace any one of the segments in the second type
non-volatile memory device other than the one currently being replaced by the first type

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non-volatile memory device.

14. (currently amended) The multi-memory architecture of claim 12, further comprising: at least one replacement segment in the second type non-volatile memory device, whose wherein data storage capacity of the replacement segment equals to that of each segment in the second type non-volatile memory device, ~~which~~ and the replacement segment can be used to replace any one of the segments in the second type non-volatile memory device other than the one being currently replaced by the first type non-volatile memory device.

15. (currently amended) The multi-memory architecture of claim 10, further comprising a replacement memory area, whose data storage capacity of a replacement segment equals to ~~the second memory device~~ the second data storage capacity, which is partitioned into a plurality of segments each being equal in data storage capacity to the first type non-volatile memory device; the replacement memory area is used to replace the second type non-volatile memory device ~~to allow the externally accessible total storage space of the multi-memory architecture to cover the currently accessed memory device selected from the second memory device and the replacement memory area excluding the storage space of the segment currently being replaced by the first memory device, and the first memory device in some segments of the~~ currently accessed memory so that when accessing data stored in the multi-memory architecture, the accessed data comprise data stored in segments in one of the second type non-volatile memory device and the replacement memory area other than segments replaced by the first type non-volatile memory device, and data stored in the first type non-volatile memory device.

16. (currently amended) The multi-memory architecture of claim 15, wherein the

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~~segment currently being replaced by the first segment is replaced by any one of the segments in the currently-accessed memory device other than the segment being currently replaced by the first memory device in the replacement memory area that is currently being replaced by the first type non-volatile memory device, is used to replace any one of the segments in the replacement memory area other than the one currently being replaced by the first type non-volatile memory device.~~

17. (currently amended) The multi-memory architecture of claim 15, wherein the second type non-volatile memory device further includes a plurality of second memory replacement segments, each being equal in data storage capacity to each segment in the currently-accessed memory device, which is used to replace any one of the segments in the currently-accessed memory device other than the segment currently being replaced by the first type non-volatile memory device.

18. (cancelled) The multi-memory architecture of claim 10, wherein the pin configuration of the first memory device having a total data capacity which is the sum of the first and second data capacities.

Claims 19-26 (cancelled)